Effects of Cattle Grazing on Small Mammal Communities at Red Rock Lakes National Wildlife Refuge

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Cattle grazing is a common land use on public land in the Intermountain West that often has varied and complex effects on wildlife. However, many studies of wildlife response to grazing only compare grazed versus ungrazed treatments, ignoring the dynamic nature of grazing and the many levels of grazing intensity and frequency commonly utilized. We undertook the current study to better understand the response of small mammals to the frequency of cattle grazing in wet meadow habitats on Red Rock Lakes NWR. Three adjacent grazing units were selected for study that provided a wide range of grazing frequencies (1, 3, and 8 yrs of rest). Two randomly placed trapping grids were placed within the *Juncus balticus – Carex praegracilis* vegetative alliance (wet meadow) in each unit. Trapping occurred throughout July, with each unit sampled 3 days during each of 3 primary trapping sessions. We captured and marked 357 individuals, and had 174 recaptures. Voles (*Microtus* spp.) comprised nearly 99 percent of individuals captured, with 2 deer mice (*Peromyscus maniculatus*), and one common shrew (*Sorex cinereus*) captured. Our results indicated that

vole abundance increased with increasing rest from grazing. Unlike abundance, however, vole survival was lowest in the unit with 8 years of rest, highest in the unit with 3 yrs of rest, and intermediate in the unit with only 1 yr of rest. Our results indicated that the current grazing program on the refuge (2-yr rest-rotation) may not permit vole populations to reach maximum abundance, and a density-dependent response of survival.